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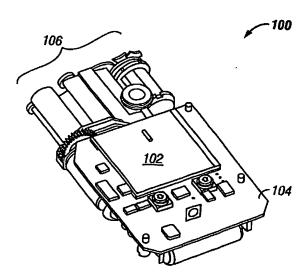
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR LOADING PENETRATING MEMBERS



(57) Abstract: A body fluid sampling system (100) is provided. In one embodiment, the system may comprise a penetrating member driver (110); a plurality of penetrating members sufficient for penetrating tissue; a tape coupling together at least two of the penetrating members; and a penetrating member release device (106) removing the penetrating member from a sterile environment prior to use and moving the penetrating member into position to be operatively coupled to the penetrating member driver. The driver (110) may comprise of a drive force generator for advancing the penetrating member and a processor coupled to the drive force generator capable of changing the direction and magnitude of force exerted on the penetrating member during the lancing cycle. The driver may further include a human interface on the housing providing at least one output for communicating with the patient.



GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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X,P	US 2003/0083685 A1 (FREEMAN et al.) 1 May 20	103. Fig. 02.06	am passages	Relevant to claim No.	
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